IN THE CLAIMS

Please amend the claims as follows:

Claims 1-3 (Canceled).

Claim 4 (Currently Amended): A method of ~~determining~~ generating a computer readable user identification number of a colluder who made a collusion attack on a computer readable content by detecting [[an]] a computer readable embedded code which is embedded in ~~a predetermined~~ the computer readable content and is a concatenation of a plurality of computer readable component codes, comprising ~~the steps of~~:

receiving said predetermined content which contains the computer readable embedded code therein from an external device;

detecting said computer readable embedded code contained within said ~~predetermined~~ computer readable content;

dividing the computer readable embedded code into the plurality of computer readable component codes;

decoding each of the plurality of computer readable component codes, thereby to obtain a plurality of residues pairs each comprising two residues, taking a plurality of integers which are predetermined and are relatively prime to each other, as moduli;

calculating [[a]] the computer readable user identification number of [[a]] the colluder ~~who made a collusion attack on the content~~, from the plurality of residue pairs; and

outputting said calculated computer readable user identification number, wherein the plurality of component computer readable codes are component codes that have a possibility to have a method of decoding at least one of the residues with respect to the computer readable user identification number of the colluder.

Claim 5 (Currently Amended): [[A unit]] an apparatus for generating determining a computer readable user identification number of a colluder who made a collusion attack on a computer readable content by detecting [[an]] a computer readable embedded code which is embedded in a predetermined the computer readable content and is a concatenation of a plurality of computer readable component codes, comprising:

an input port configured to receive said predetermined content which contains the computer readable embedded code therein from an external device;

a detector configured to detect said computer readable embedded code contained within said predetermined computer readable content;

a code divider configured to divide the computer readable embedded code into the plurality of computer readable component codes;

a component code decoder configured to decode each of the plurality of computer readable component codes, thereby to obtain a plurality of residues pairs each comprising two residues, taking a plurality of integers which are predetermined and are relatively prime to each other, as moduli;

a colluder number calculator configured to calculate [[a]] the computer readable user identification number of [[a]] the colluder who made a collusion attack on the content, from the plurality of residue pairs; and

an output port configured to output said calculated computer readable user identification number, wherein

the plurality of computer readable component codes are component codes that have a possibility to have a method of decoding at least one of the residues with respect to the computer readable user identification number of the colluder.

Claim 6 (Currently Amended): [[A unit]] An apparatus according to claim 5, wherein the plurality of computer readable component codes are each constructed by continuous sequences of 1 and 0, taking a predetermined number of bits as a unit.

Claim 7 (Currently Amended): [[A unit]] An apparatus according to claim 5, further comprising a collusion determiner configured to determine presence or absence of a collusion from the plurality of residue pairs, wherein the colluder identification number calculator [[after]] is configured to calculates calculate the computer readable user identification number of the colluder, if presence of a collusion is determined by the colluder determiner.

Claim 8 (Currently Amended): A unit An apparatus according to claim 5, wherein the colluder number calculator includes:

a residue selecting section configured to select for selecting one residue from each of k' inputted residues pairs, thereby to generate a set of k' residues (R1, R2, ..., Rk');

a Chinese remainder theorem section configured to calculate for calculating a candidate of a computer readable user identification number u of a colluder, from k residues (S1, S2, ..., Sk) which are different from each other and selected from the set of k' residues generated by the residue selecting section, in accordance with a Chinese remainder theorem; and

a consistency checking section is configured to select for selecting the k residues from the set of k' residues generated by the residue selecting section, configured to supply for supplying the k residues to the Chinese remainder theorem section, for specifying configured to specify a user identification number of the colluder from the candidate of the user identification number u of the colluder calculated by the Chinese remainder theorem section,

and ~~for outputting~~ <u>configured to output</u> the user identification number of the colluder, wherein

the consistency checking section has selection processing ~~for selecting~~ <u>configured to select</u> the k residues from the set of k' residues generated by the residue selecting section, determination processing ~~for determining~~ <u>configured to determine</u> whether or not a relationship of Ri=u mod pi (i=i_1, i_2, ..., i_ℓ) exists between the candidate of the <u>computer readable</u> user identification number u of the colluder calculated by the Chinese remainder theorem section and a predetermined number (ℓ) of residues among remaining (k'-k) residues, and output processing ~~for outputting~~ <u>configured to output</u> the candidate as a <u>computer readable</u> user identification number of a colluder if the relationship exists as a result of the determination processing,

if the relationship does not exist, a new combination of k residues (S 1, S2, ..., Sk) is selected from the set of the k' residues generated by the residue selecting section, thereby to carry out the determination processing, and if the relationship does not exist with respect to any of all combinations of k residues (S1, S2, ..., Sk), a new set of k' residues is requested to the residue selecting section, and the selection processing and the determination processing are repeated until the relationship exists.

Claims 9-13 (Canceled).

Claim 14 (Currently Amended): ~~A unit for determining~~ <u>An apparatus generating</u> a <u>computer readable</u> user identification number of a colluder <u>who made a collusion attack on a computer readable content</u> by detecting [[an]] <u>a computer readable</u> embedded code, comprising:

an input port configured to receive from an external device predetermined content

having the <u>computer readable</u> embedded code embedded therein;

a detector configured to detect said <u>computer readable</u> embedded code contained

within said ~~predetermined~~ <u>computer readable</u> content;

a code extractor configured to extract the <u>computer readable</u> embedded code from the

~~predetermined~~ <u>computer readable</u> content, the <u>computer readable</u> embedded code is a

concatenation of <u>a plurality of computer readable</u> component codes respectively generated in

correspondence with an inputted <u>computer readable</u> user identification number and also being

such that among k' <u>computer readable</u> component codes capable of expressing all sets of

integral elements that are calculated with respect to a predetermined number of <u>computer</u>

<u>readable</u> user identification numbers, k combinations of the k' <u>computer readable</u> component

codes can uniquely express the user identification numbers;

a code divider configured to perform a division and extract <u>computer readable</u>

component codes;

a component code decoder configured to decode each of the extracted <u>computer</u>

<u>readable</u> component codes;

a colluder number calculator configured to calculate a <u>computer readable</u> user

identification number of a colluder from a decoding result of each of the <u>computer readable</u>

component codes; and

an output port configured to output said <u>computer readable</u> user identification number,

wherein

k' is determined to be $c(k+\ell)/q$ or more where c is a positive integer of 3 or more, ℓ is a

positive integer, and q is a number of the integral elements which can be detected from each

of the <u>computer readable</u> component codes when detecting the <u>computer readable</u> embedded

code.

Claim 15 (Currently Amended): [[A unit]] An apparatus according to claim 14, wherein, where pi (i=1, 2, ..., k') is a number of values which each of the integral factors calculated by the calculator can take with respect to the predetermined number of computer readable user identification numbers and where ε is a detection error rate which is assumed when detecting the computer readable embedded code, k' is determined such that a condition of

$$\left[1-\prod_{i=l}^{l}\left\{1-\left(1-\frac{1}{pi}\right)^{c}\right\}\right]^{c(k+l)/2^{c_{k+l}}X\,2^{k+l}} \geq 1-\frac{\varepsilon}{2}$$

is satisfied.

Claim 16 (Currently Amended): [[A unit]] An apparatus according to claim 14, wherein the set of integral elements is a set of residues, which are calculated in correspondence with the computer readable user identification number and take a plurality of integers relatively prime to each other as moduli.

Claim 17 (Currently Amended): [[A unit]] An apparatus according to claim 14, wherein the set of integral elements is a set of numbers of elements which are calculated in correspondence with the computer readable user identification number and belong to an equivalence class defined by a parallel transformation.

Claim 18 (Currently Amended): [[A unit]] An apparatus according to claim 14, wherein the set of integral elements is a set of numbers of elements which are calculated in

correspondence with the <u>computer readable</u> user identification number and belong to an equivalence class defined by a parallel transformation, and

where p_i (i=1, 2, ..., k') is one same positive integer p, a condition of

$$k' = \frac{c}{2}(k+l) \le \frac{p^k - 1}{p - 1}$$

is further satisfied.

Claim 19 (Currently Amended): [[A unit]] <u>An apparatus</u> for <u>generating</u> ~~determining~~ a <u>computer readable</u> user identification number of a colluder <u>who made a collusion attack on a computer readable content</u> by detecting <u>a</u> [[an]] <u>computer readable</u> embedded code, comprising:

an input port configured to receive from an external device ~~predetermined~~ <u>computer readable</u> content having the <u>computer readable</u> embedded code embedded therein;

a detector configured to detect said <u>computer readable</u> embedded code from said ~~predetermined~~ <u>computer readable</u> content;

a code extractor configured to extract the <u>computer readable</u> embedded code from said ~~predetermined~~ <u>computer readable</u> content, the <u>computer readable</u> embedded code is a concatenation of <u>computer readable</u> component codes respectively generated in correspondence with an inputted <u>computer readable</u> user identification number and also being such that among k' <u>computer readable</u> component codes capable of expressing all sets of integral elements that are calculated with respect to a predetermined number of <u>computer readable</u> user identification numbers, k combinations of the k' <u>computer readable</u> component codes can uniquely express the <u>computer readable</u> user identification numbers;

a code divider configured to perform a division into extracted <u>computer readable</u> component codes;

a component code decoder configured to decode each of the extracted <u>computer readable</u> component codes;

a colluder number calculator configured to calculate a <u>computer readable</u> user identification number of a colluder from a decoding result of each of the <u>computer readable</u> component codes; and

an output port for outputting said <u>computer readable</u> user identification number, wherein

the component code <s>decoding means</s> <u>decoder</u> includes a block dividing section <u>configured to divide</u> <s>for dividing</s> each of the component codes into blocks, a counting section <s>for counting</s> <u>configured to count</u> a number of bits of "1" in every one of the blocks, a first determining section <s>for determining</s> <u>configured to determine</u> whether or not a count value obtained by the counting section exceeds a first threshold value, a second determining section <s>for determining</s> <u>configured to determine</u> whether or not the count value is smaller than a second threshold value, a minimum position selecting section <s>for selecting</s> <u>configured to select</u> a minimum block determined as exceeding the first threshold value by the first determining section, and a maximum position selecting section <s>for selecting</s> <u>configured to select</u> a maximum block determined as being smaller than the second threshold value, thereby to output a selection results of the minimum and maximum position selecting sections, as a decoding result.

Claims 20-22 (Canceled).

Claim 23 (Currently Amended): [[A unit]] <u>An apparatus</u> according to claim 5, wherein the colluder number calculator <s>generates</s> <u>is configured to generate</u> at least one <u>computer readable</u> user identification number candidate having a possibility to be the

computer readable user identification number of the colluder, from the plurality of residue

pairs, selects at least one computer readable user identification number having a lower

possibility to be erroneously detected as the computer readable user identification number of

the colluder, among the candidate, and decides the selected computer readable user

identification number as the computer readable user identification number of the colluder.

Claim 24 (Currently Amended): [[A unit]] An apparatus according to claim 5,

wherein the colluder number calculator is configured to sequentially generates generate a

plurality of computer readable user identification number candidates having a possibility to

be the computer readable user identification number of the colluder, from the plurality of

residue pairs, determines whether a possibility to be erroneously detected as the computer

readable user identification number of the colluder is high or low, with respect to the

candidates, and decides all of the computer readable user identification numbers that have the

possibility to be determined to be low, as computer readable user identification numbers of

colluders.

Claim 25 (Currently Amended): [[A unit]] An apparatus according to claim 23,

wherein the colluder number calculator is configured to obtain obtains a number of those

residues among all of the residues pairs that satisfy a congruence to the residues taking the

plurality of integers as modulus, with respect to all computer readable user identification

numbers, and generates is configured to generate a computer readable user identification

number which makes the number to be a predetermined threshold value or more, as a

computer readable user identification number candidate of the colluder.

Claim 26 (Currently Amended): [[A unit]] An apparatus according to claim 24, wherein the colluder number calculator ~~obtains~~ is configured to obtain a number of those residues among all of the residues pairs that satisfy a congruence to the residues taking the plurality of integers as modulus, with respect to all computer readable user identification numbers, and is configured to generate ~~generates~~ a computer readable user identification number which makes the number to be a predetermined threshold value or more, as a computer readable user identification number candidate of the colluder.

Claim 27 (Currently Amended): [[A unit]] An apparatus according to claim 5, wherein the colluder number calculator includes a storage device ~~which stores~~ configured to store a plurality of computer readable user identification numbers having a lower possibility at which the plurality of computer readable user identification numbers are erroneously detected as the computer readable user identification numbers of the colluder, and ~~decides~~ is configured to decide a computer readable user identification number which coincides with at least one computer readable user identification number candidate having a possibility to be the computer readable user identification number of the colluder, generated from the plurality of residue pairs, among the computer readable user identification numbers stored in the storage device.